

NUMBER I.

Price Two Shillings and Sixpence,

OF THE

Monthly Correspondent

ON

PHYSICAL AND PROGNOSTIC

Astronomy, Chemistry, Botany, Agriculture, &c.

TO WHICH IS ADDED,

MENTOR STELLARUM,

OP A

COMPLETE SYSTEM OF STARRY SCIENCE.

Contents.

MONTHLY CORRESPONDENT. ntroductory Lines — — 9	Of Comets
stronomical Observations for Ja-	Service and Consider

MENTOR STELLARUM

Unless we know whence we tend, whither we tend, and through what we tend, we shall have neither a just commencement, object, or direction.

CAPEL LOFFT.

But if some merit you shall chance to find, Some rays of genius in our panting mind, O'erlook our failings, set our hearts at ease, Nor damp an ardour that aspires to please.

J. DUPRE.

TO CORRESPONDENTS.

We are sorry to be under the necessity of apologizing to our Correspondents for the omission of several valuable Letters, which press of matter alone has compelled us to postpone the publication of till another month. Amongst the rest we wish to enumerate Medicus, Studiosus, and the erudite Philalethes, whose query shall certainly be inserted, as well worthy of public attention, and leading to a series of investigations highly beneficial, whatever may be their result, to society.

We hope our friend Medicus will continue his favours, without intermission; and should any lady or gentleman wish to communicate with him personally, a line addressed to the Editor (post paid) will be carefully conveyed to him.

To our Pinlico Friend, for his truly interesting and invaluable communication respecting RICHARD SAVAGE, which would do honour to the pages of any periodical work, we can scarcely find terms adequate to express our regret at its not having come to hand before this morning, Dec. 29th, which rendered its insertion, before the month of February, impossible.

To P. P. we beg leave to return our best thanks, and we hope for future favours of a like nature, having evinced the interest we attached to his paper by giving it immediate publicity, notwithstanding the lateness of the period when it came to hand.

All communications, whether of a public or a private nature, addressed (post paid) to the Editor, at Mr. Coe's, Printer, 10, Little Carter Lane; or at Mr. Addison's, 3, St. Agnes Place, Old Street Road, will receive due attention.

ASTROLOGY

Taught in a concise, clear, and easy Manner,

BY A PROFESSOR.

A Line addressed (post paid) to J. S. No. 1, York Street, Globe Road, Mile End, will be immediately attended to, and a Meeting given.

PREFACE.

The science of Prognostic Astronomy having been more cultivated in Europe during the last twenty years than it had been for a century preceding, the number of its admirers has, of course, been increased. The city of Paris alone is supposed to contain no less than ten thousand professors; and even in England, many hundreds are to be found within the bills of mortality, besides those scattered in the provinces.

Some philosophers have argued very eloquently against the dissemination of this science; but, unless they could stifle human passions; unless they could endow all minds with strength sufficient to approve nothing but what is reasonable and true; to discriminate between the professor and the pretender, ignorant and credulous people must be daily imposed upon,



and those arguments have hitherto been of little or no avail in remedying the evil.

It therefore seems there is but one mode of removing, or freeing from its absurdities. a science growing so much into repute among a certain class of people, and that is, by a more extensive and satisfactory investigation through the medium of the press, the omnipotent regulator of public opinion; which, with all the disadvantages it labours under, is still the great bulwark of British virtue; and which, in this only, of all other European countries, is really It is open to all kinds of discussion; through it men of the most opposite opinions become known to each other; and from the collision of their arguments, conviction, harmony, and improvement spring. There is no vice so elevated, no absurdity so latent, but what shrinks, and dreads annihilation from its power; no laudable invention, no gradation from good to better, either in the physical or moral world, but what is indebted to the press for its exaltation and its usefulness. this sacred medium, even now, intellectual and divine lights spread amongst all nations and in

all tongues. Through it, hand in hand with the glorious beam of education, which is now commissioned to illumine the cot of poverty, the veriest son of indigence is instructed to adore his God: nay, even the unenlightened inhabitant of countries the most remote from civilization, now, perhaps, in the hour of dismay and death, pressing his Bible to his heart, breathes a prayer for the prosperity of that country, whose precious gift has taught him to draw his consolations from "another and a better world."

Availing ourselves of this inestimable liberty of the press; viewing with concern the extension of error, and seeing no other probable way of arresting its progress; after many and long deliberations, we venture our "Monthly Correspondent" before the Public Tribunal; its name implying that it is principally intended as a vehicle for the opinions of men of genius and experience, superior to our own, which we shall think cheaply purchased with all the expense and pains our work has cost us. Fully aware of our own incompetency to decide on

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matters that appear to be scarcely within the level of the highest mortal understandings, we have hesitated at the task; yet, with becoming boldness, shall not be afraid to publish from time to time all such disquisitions and exemplifications for investigating this science as may conduce to the great moral end proposed.

Some of us have been informed, by men whose talents the world, as well as ourselves, have long known and admired, of the boldness of our design; of the impossibility of carrying such an undertaking into effect, without incurring the disapprobation of many of our fellowlabourers in the world of literature. We have been told of the silent shaking of the friendly head; of the look composed of grief and pity, that wounds far more deeply than the united sneers of folly, insolence, and scorn together. We have been told how little chance we have of obtaining the elucidations of those scientific minds that alone can give our work the stamp of respectability; they having generally treated our leading subject as too ridiculous to be worth a second thought; to which we answer-

We conceive the importance of any attempt that tends to clear the source of any doctrine practised and believed by a large portion of society, as deserving to be acknowledged; particularly if a considerable part of that society be composed of a sex, who, while scattering roses in our path, more acutely feel the disappointments, the sorrows, and the sufferings of life. In fact, whatever doctrine the smallest part of a community sanctions and gives credence to, will gradually extend its circumference; and the more it is involved in obscurity, or, what is worse, in error, of the more general consequence it must become; the crime (or to soften it, say folly), therefore, in men of ability is, not in any attempt to enlighten and to purify, but in their contemptuous silence. Will it not be allowed that the most sublime human capacity has its boundary affixed? Who is there, then, seeing "through every link of nature's chain," her omnipotent Maker has created a predisposing cause for each effect, that can, with reason entirely on his side, utterly condemn and disbelieve a science, the whale intention of which is to explore those

causes. Besides, it brings down to us from the earliest periods, the names of men known to be fully as great in the knowledge of other arts; whose writings, though in some parts superstitious and uncouth as the times in which they appeared, evince minds equally capacious with any now existing; that is, allowing for the progress of society in refinement and experience.

If we are not now justified, we really know not how to strengthen our argument. If we have failed to convince our best friends, those whose good opinions are dear to us, we can make no appeal to their feelings. Let them be assured that we attempt nothing, but in the most firm consciousness of the rectitude of our intentions: instead then of silent and deploring centure, let them contribute their parts cheerfully to assist an undertaking begun on such a basis; which in the various field of science, thus humbly opened, may be easily done; and if the gratitude of hearts whose faith and affection have long been tried can increase the glow of mind arising from having contributed to make

society wiser and better, ours will be offered fully and freely.

Should our undertaking experience the disapprobation of one scientific and real patriotic mind, we hope his opinion will be conveyed with candour; for the reprehension of the wise is ever salutary, and will be received with becoming reverence. It is the silence only of such we fear, as in that case the impression that our pages are beneath their writings would hurt and humble us. The sneers and the railing of insolence and folly we do not dread; and while we shall deem it our duty to admit the queries, to enlighten the understandings, and to do all in our power to alleviate the sorrows of those who really seek for knowledge and relief; we shall repel all applications arising from curiosity, unless they should carry marks of ability sufficient to entitle them to consideration.

London, Sist Dec. 1818.

THE

Monthly Correspondent,

&c. &c.

No. I.

JANUARY 1, 1814.

Vol. I.

INTRODUCTORY LINES.

Ir in an age, though rude, and unrefin'd,
Some glow of genius mark'd the inquiring mind;
If times succeeding, 'midst the letter'd gloom,
Trac'd there the beams of Athens and of Rome,
While from the superstitious shades of yore,
Science, emerging, gilds the mystic lone,
Not only starry systems brings to view
For admiration, but instruction too;
Truth rises rob'd in beauty and delight,
Urania smiles, and spreads the heavenly light!

What wonder then that we a science scan,
Which, tracing Nature, analyzes man;
Whether we view him plac'd in joy or wo;
Whether trace Earth, or search her deeps below;
Whether we contemplate the glorious Sun,
The circling Planets, or the changeful Moon;
Whether the elements in mildest form,
Or in the horrors of the roaring storm;
In all, the Almighty Architect we mark,
Clear, though mysterious, luminous, though dark!
If contemplation of the stars invite
The mind to adoration and delight;
Shall then the knowledge of their powers and laws
Fail to give pleasure, and deserve applause?

NO. I.

Does not conviction in our mind arise, Bright as the Sun that glads the orient skies? Is not of Providence the firm belief Source of our joy, and sunshine in our grief?

When we survey you circling orbs on high, Say, do they only grace the spangled sky? Have they no influence, no functions given To execute the awful will of Heaven? Is there no sympathy pervading all Between the Planets and this earthly ball? No tactile intercourse from pole to pole Between the ambient and the human soul? No link extended through the vast profound, Combining all above, below, around?— First in the train the eventful Moon appears, Spouse of the Earth, and handmaid of the Spheres. Next Venus shines, dispersing influence sweet With genial joys, with nature's balm replete. Mercury next, rarely seen, delights to play Amidst the effulgence of the Solar ray. Next smiles the Sun, magnificently bright, Lord of the heavenly host, and source of light. Above his sphere, fierce Mars revolves and shows His ireful aspect that destructive glows, Clad in gross atmosphere, of lurid hue. Beyond, majestic, rises to our view, While four satellites around him move In azure robes, the friendly star of Jove. Beyond his sphere, remote from solar ray, Moves Saturn *, spreading sorrow and dismay;

^{*} This planet, when viewed through a good telescope, makes a more remarkable appearance than any of the other celestial wanderers. Galileo first discovered his uncommon shape, which he thought to be like two globes, one on each side a larger one. Having viewed him for two years, he was surprised to see him become quite round without these appendages, and then afterwards to assume them as before. These adjoining globes

Seven † circling moons cheer the slow wanderer on, Girt with the glories of a radiant zone.

were what are now called the ansæ of his ring, the true shape of which was discovered by Huygens, about forty years after Galileo. From the discoveries made by him and other astronomers, it appears that this planet is surrounded by a broad thin ring, the edge of which reflects little or none of the sun's light to us; but the planes of the ring reflect the light in the same manner that the planet itself does; and, if we suppose the diameter of Saturn to be divided into three equal parts, the diameter of the ring is about seven of those parts. The ring is detached from the body of Saturn in such a manner that the distance between the innermost part of the ring and the body is equal to its breadth. Both the outward and inward ring of the rim is projected into an ellipse, more or less oblong, according to the different degrees of obliquity with which it is viewed. Sometimes the eye of the observer is in the plane of the ring, and then it becomes invisible, either because the outward edge is not fitted to reflect the sun's light, or because it is too thin to be seen at such a distance. As the plane of the ring keeps always parallel to itself, it disappears twice in every revolution of the planet: that is, once in about fifteen years, and he sometimes appears quite round for nine months together. At other times, the distance between the body of the planet and the ring is very perceptible, so much so, that a star has been seen through the opening. When Saturn appears round, if our eye be in the plane of the ring, it will seem as a dark line across the middle of the planet's disk, and if the eye be elevated about the plane of the ring, a shadowy belt will be visible, which is caused by the shadow of the ring, as well as by the interposition of part of it between the eye and the planet.

The shadow of the ring is broadest when the sun is most elevated, but its obscure parts appear broadest when the eye is most elevated above the plane of it. When it seems to be double, the ring next the body of the planet appears brightest; when the ring appears of an elliptical form, the parts about the ends of the largest axis are called ansæ, as has been mentioned. These, a little before and after the disappearing of the ring, are of unequal magnitude; the largest ansa is longer visible before the planet's round phase, and it appears again sooner than the other. On the 1st of Oct. 1714, the largest ansa was on the east side, and on the 12th on the west side of the disk of the planet, which makes it probable that the ring has a rotation round an axis. Dr. Herschel has shewn that it revolves in its own plane in about 10½ hours. The observations of this great philosopher have added greatly to our knowledge of Saturn's ring. According to him there is one single, dark, considerable broad belt or zone, which he has constantly found on the north side of the ring. As this dark belt is sub-

Beyond moves Herschel; man decrepid grows Ere his vast round the distant traveller goes.

ject to no change whatever, it is probably owing to some permanent construction of the surface of the ring, this construction cannot be owing to the shadow of a chain of mountains, since it is visible all round on the ring, for there could be no shade at the ends of the ring. A similar argument will apply against the opinion of very extended caverns. It is pretty evident that this dark zone is contained between two concentric circles, for all the phenomena correspond with the projection of such a zone. The nature of the ring Dr. Herschel thinks no less solid than that of Saturn itself, and it is observed to cast a strong shadow upon the planet. The light of the ring is also generally brighter than that of the planet; for the ring appears sufficiently bright when the telescope affords scarcely light enough for Saturn. The Doctor concludes, that the edge of the ring is not flat, but spherical, or spheroidical. The dimensions of the ring, or of the two rings, Dr. Herschel has given as follows:

miles.
146,845
184,393
190,248
204,883
20,000
7,200
2,839

The conjectures relative to the nature of this ring have been various: some persons have imagined that the diameter of this planet was once equal to the present diameter of the outward ring, and that it was hollow; the present hody being contained within the former surface, in some such a manner as a kernel is contained within its shell. They suppose, that in consequence of some concussion, or other cause, the outer shell fell down to the inner body, and left only the ring at the greater distance from the centre. This conjecture is in some measure corroborated by the consideration that both the planet and its ring performed their rotations about the same common axis, and in very nearly the same time. Dr. Herschel. from the observations he made on the planet, concludes in the following words: " It does not appear to me that there is sufficient ground for admitting the ring of Saturn to be of a very changeable nature, and I guess that its phenomena will hereafter be so fully explained as to reconcile all observations. In the mean time, we must withhold a final judgment of its construction, till we can have more observations. Its division into two very unequal parts can admit of no doubt."

Those other wouders in the immense profound, Or in the Zodiac, or beyond its bound,

The diameters of Saturn are not equal; they are probably in the proportion of about eleven to ten. This form compared with that of Jupiter, leads one to conclude that Saturn turns rapidly round his shorter axis, and that the ring moves in the plane of his equator. Huygens observed five belts upon this planet nearly parallel to the equator.

† The orbits of all these satellites, except the fifth, are nearly in the same plane, which makes an angle with the plane of Saturn's orbit of about 31°, and by reason of their being inclined at such large angles, they cannot pass across their primary, or behind it, with respect to the earth, except when very near their node; so that eclipses of them happen much less frequently than of the satellites of Jupiter.

Till the time of Dr. Herschel, five satellites only were known, as connected with this planet; this astronomer, in the years 1787 and 1788, discovered two others. These are nearer to Saturn than any of the other five; but to prevent confusion, they were nominated the sixth and seventh satellites. The fifth satellite has been observed to turn once round its axis, exactly in the time in which it revolves round Saturn; and in this respect it resembles our moon. Much more will be said of this planet in the MENTOR STELLARUM.

‡ This planet entirely escaped the attention and notice of ancient astronomers. It was observed as a small star by Flamstead, Mayer, and Le Mounier; but Dr. Herschel discovered its motion, and ascertained it to be a planet. Like Mars, Jupiter, and Saturn, it moves from west to east round the sun. The duration of its sidereal revolution is 30,689 days, or about \$4 years. Its motion, which is nearly in the plane of the ecliptic, begins to be retrograde before and after opposition, when the planet is 103½° from the Sun; its retrograde motion continues 151 days, and the are of retrogradation amounts to rather more than 3½°. If we judge of the distance of this planet by the slowness of its motions, it ought to be at the very confines of the planetary system.

The apparent magnitude of this planet is so small that it can seldom be seen with the naked eye. It is accompanied by six satellites. Its mean distance from the sun is about 1,800,000,000 miles. Its diameter is 4½ times larger than that of the Earth, being more than 35,000 English miles. When seen from the Earth, its apparent diameter, or the angle which it subtends at the eye, is 3" 32". As the distance of this planet from the Sun is twice as great as that of Saturn, its disk will appear four times smaller, and is bút little the object of notice, except with those who possess good instruments. When, however, the sky is very screne and clear, it may be found with the naked eye; and it appears a star of the

The amazing host of countless stars appears, Groups of vast worlds, and suns to other spheres.

sixth magnitude, with a bluish white light, and a brilliancy between that of Venus and the Moon; but with a power of 200 or 300, the disk is visible, and very well defined.

The want of light, arising from the great distance of this planet from the Sun, is supplied by six satellites, all of which were discovered by Dr. Herschel. The first satellite revolves round its primary in 5d. 21h. 25m.; the second, in 8d. 17b.; the third, in 10d. 23h.; the fourth, in 13d. 11h; the fifth in 38d. 1h. 49m.; and the sixth requires to complete its revolution nearly 108 days. The second and fourth of these satellites were discovered an the 11th of January, 1787. The other four were discovered in 1790, and 1794; but their distances and periodic times, though set down above, are not so accurately ascertained as the other two. It is a remarkable circumstance, however, that all the six satellites move in a retrograde direction, and in orbits lying in or nearly the same plane, and almost perpendicular to the ecliptic. La Place imagines that the first five satellites of the Georgian planet may be retained in their orbits by the action of the equator, and the sixth by the action of the interior satellites; and hence he concludes, that this planet revolves about an axis very little inclined to the ecliptic, and that the time of its diurnal rotation cannot be much less than that of Jupiter and Saturn.

The additions to our astronomical knowledge made by the discovery of this noble planet, and the other four smaller planetary bodies, hereafter described, as moving between Mars and Jupiter, do not merely present us with a few insulated facts similar to those with which we were formerly acquainted. "They exhibit to us," says Mr. Brewster, "new and unexpected phenomena, which destroy that harmony in the solar system which appeared in the magnitudes and distances of the planets, and in the form and position of the orbits. The six planets which were formerly supposed to compose our system, were placed, excepting in the case of Mars and Jupiter, at somewhat regular distances from the Sun: they all moved from west to east, and at such intervals as to prevent any extraordinary derangements which might arise from their mutual action. Their magnitudes too, with the exception of Saturn, increased with their distance from the centre of the system; and the eccentricity, as well as the inclination of their orbits, was comparatively small. In the system, as it is now understood and delineated by the most accurate observers, we find four very small planets between the orbits of Mars and Jupiter, placed at nearly the same distance from the Sun, and moving in very concentric orbits, which intersect each other, and are greatly inclined to the plane of the ecliptic. The satellites of the Georgian planet, likewise, move almost at right angles to the plane

Immortal Sage! O for thy mighty soul Ptolomy! to whom science did unroll With richest knowledge stored her page sublime, Grac'd with the approving smiles of Truth and Time. Ah! vain the wish; yet not, perhaps, in vain The noble ardour that aspires to gain Knowledge, that bids the mental beam to shine With reason's radiance, and with truth divine: Knowledge, by which the soul, inspir'd and aw'd, Best comprehends an omnipresent God. Knowledge, which opes the eternal cause of things-Heaven's beauteous plan, and Nature's hidden springs. Knowledge, the most admir'd, when understood-Most glorious object of the wise and good:-Knowledge, which shews, united in man's frame An earthly portion, an etherial flame; This the frail body, that the immortal soul Subjected to the element's control. The watery this and the terrene compose, That with the fiery and the airy glows. Hence the four reigning humours, hence we scan The many-colour'd character of man, Trace his component elements, and see Why here they harmonize, there disagree; Why health here spreads her roseate smiles, and there Diseases' fierce relentless fiends appear; Why here we view him rude and unrefin'd, There deck'd with graces of the heart and mind; Why here of peace enamour'd, life's soft charms, There fond of glory 'midst the din of arms; Why here with sensibility endu'd, Humanely sad, in generous woes embru'd;

of the orbit; and, what is still more surprising, the direction of their motion is opposite to that in which all the other planets and planetary bodies, whether primary or secondary, circulate round their respective centres."

Why there devoid of charitable mind That blesses, dignifies, endears mankind; And why (Oh such his imperfections here!) His virtues intermix'd with vice appear; Why love and hatred, hope and fear combin'd, Form the strange picture of his various mind; Now rash, now prudent, nows evere, now mild; Though rude, sagacious; though inform'd, a child; Though haughty, humble; vengeful, yet benign; Blended appear the mortal and divine. Though such the ambient's influence on man, 'T is Heaven, not fate, directs the amazing plan. Nor think, because the elements conspire To cherish or extinguish vital fire; Because they tend to scatter sunshine round, Or wrap the gloomy soul in night profound, That all our efforts ineffectual prove, Reason's blest light, and virtue's heavenly love; That though disease oft baffles all control, Which or afflicts the body or the soul. Yet oft fate yields her formidable rod To art celestial, and the Delian god. That though too strong oft proves the tide of fate, Yet virtue best relieves affliction's weight: That though our state nor health nor honours grace, Yet Heaven some good ordains to fill their place. Some bliss denied the affluent and the great, Visits the wise and good in humble state: And, as the seasons turn the varying scene From warmth to cold, from stormy to serene, So changeful man is pre-ordain'd to know In due succession happiness and wo: And though subjected to the starry train, The soul on reason's throne asserts her reign:

And though whole hosts her glorious power oppose, By virtue shielded smiles at all her foes; Unsullied conscience soothes her latest breath, And heaven receives her from the arms of death.

ASTRONOMICAL OBSERVATIONS.

We naturally observe the beginnings and ends of years and months, and other settled portions of time; we note the occurrences which take place as these intervals elapse; and we do this wisely and beneficially, although we can tell but little of time in itself. Yet metaphysicians are tempted to speculate on its nature; while astronomers, and other men of science, define it in its relations to the various subjects which they investigate. God only hath true immortality or eternity; that is to say, "Continuance, in which there grows no difference by the addition of Hereafter unto Now;" whereas other creatures, how noble soever they may be in their nature or their tendencies, have, by reason of their continuance, the time of their former continuance lengthened, and the time of their subsequent continuance (at least in the present state of being) shortened.

Hence the importance of regarding time in its perpetual current, and hence the most obvious of its definitions, as it has been very accurately expressed by Hooker, in the following terms: "Time, considered in itself, is but the flux of that very instant wherein the motion of the heaven began; being coupled with other things, it is the quantity of their continuance measured by the distance of two instants. As the time of a man is the man's continuance from the instant of his first breath, till the instant of his last gasp."—Thus time serves for the measure of other things, while itself is measured by means of motion and number. It is not, however, an effect of motion, nor is it a result of number; for it would be

NO. I.

easy to conceive of time, though motion and number were not. Time, regarded as the quantity of continuance, may as well be imagined in reference to a single thing at rest, as to a multitude in motion. Motion, however, is necessary to measure and compare the portions of duration; for to say accurately how long or how short the continuance of a thing may be, without a reference to motion, were impossible. Thus the motion of the sand in a glass has served to mark the hour; of the shadow on a dial, to mark the returns of noon, or the measure of a day; that of the moon to define a lunation or month; and that of the sun through the ecliptic to fix the terms of the year. And thus much may suffice to say of time in relation to the present subject; for more on time in general, we refer to the Pantologists and Lexicographers.

In the time of Numa Pompilius, the month of January, which was then, as well as now, the first in the year, commenced at the winter solstice, or the time when the Sun entered Capricorn; with us, at the present period, January commences ten days after the Sun's apparent ingress into that sign; of course the days are not now at the shortest, but have lengthened about four minutes since the shortest day. Taking intervals of ten days through the month, the times of the Sun rising and setting, at London, will be

Saturday, 1st. Sun rise 8h. 5m. Sun set 3h. 55m.

Tuesday, 11th. — 7h. 56m. — 4h. 4m.

Friday, 21st. — 7h. 44m. — 4h. 16m.

Equation of Time.—This is the adjustment of the difference of time, as shewn by a well-regulated clock and a true sun-dial. A good clock measures that equable time which the rotation of the earth on its axis exhibits; whereas the dial measures time by the apparent motion of the sun, which from a cause, hereafter to be explained, is subject to variation: equal, or true time, is measured by an accurate clock; apparent time by the dial. To find true time, we must add or subtract, as the case may require; a certain number of minutes or seconds to apparent time, which is marked by the dial. The following table will show what is to be added for every fifth day of the the month of January:

Saturday, Jan. 1st. to the time on the dial, add 3m. 48sec.

Thursday, 6th. 6m. 5sec. Tuesday, 11th. 8m. 11sec. Sunday, 16th. 10m. 3sec. Friday, 21st. 11m. 37sec. Wednesday, 26th. 12m. 53sec. Monday, 31st. 13m. 48sec. That is, when it is 12 o'clock on the dial it must on the 1st of January be 3m. 48sec. after 12 by the clock, which is true time. The Sun will enter Aquarius on the 20th day.

The Moon will be in the full on Thursday, the 6th day, at 8m. past 7 in the morning; and the ensuing New Moon will occur on Friday, the 21st day, at 13m. past 2 in the morning. The times of the Moon's rising for the first 5 days after she is in the full, will be as follows: viz.

at 34m. past 2 o'clock in the afternoon.

Jan. 7th, 5h. 44m. P.M. - Jan. 8th, 7h. 0m. P.M. Jan. 9th, 8h. 14m. P.M. - Jan. 10th, 9h. 27m. P.M. Jan. 11th, 10h. 40m. P.M.

They who travel at night, will do well to bear in mind, that this luminary gives no useful light till nearly an hour after she has arisen.

There will be a solar eclipse on the 21st day; that is, at the time of the New Moon; but it will not be visible in England.

On the 1st day of this month the Moon will eclipse the star marked μ ceti, in astronomical catalogues. The immersion will occur at 17m. past 9 in the evening, when the star will be $11\frac{1}{2}$ ' north of the Moon's centre, and the emersion at 12m. past 10, the star being then 9' north of the centre of that luminary.

Another star, namely, (II, will be eclipsed by the Moon on the 6th day. The immersion will take place at 41m. past 2 in the morning, the emersion at 15m. past 3; in both cases the star will be about 14' north of the Moon's centre.

The Moon will likewise eclipse a third star, viz. 2 \(\xi\$ ceti on the 28th. The time of immersion will be 31m. past 8 o'clock in the evening, that of emersion 32m. past 9; in the former case the star will be 6', in the latter 7' south of the Moon's centre.

Mercury will appear at his greatest elongation from the Sun on the 2d day, and Saturn will be in conjunction with that luminary on the 12th.

The astronomical observer may be informed, that eclipses of Jupiter's first satellite will be visible at the following times, viz. the immersions on the

2d day at 12m. past 6 in the morning. 3d — 40 — 12 1 lth ---33 - morning. I8th — 27 — 5 - morning. 19th — 55 — 10 - evening. 25th — 20 6 - morning. 26th - 47 evening. 7

OF COMETS.

Comers are a class of celestial bodies which appear occasionally in the heavens. They exhibit no visible or well-defined disk, but shine with a pale and cloudy light, accompanied with a tail, or train, turned from the sun. They are found in every part of the heavens, moving in all directions. When examined through a good telescope, a comet may be said to resemble a mass of aqueous vapours, encircling an opaque

nucleus of different degrees of darkness in different Comets. though sometimes no nucleus can be seen. As the Comet advances towards the Sun, its faint and nebulous light becomes more brilliant, and its luminous train gradually increases in length.—When it reaches its perihelion, the intensity of its light, and the length of its tail, reach their maximum, and sometimes it shines with all the splendour of the planet Venus. During its passage from the perihelion, it is shorn from its splendour; it gradually resumes its nebulous appearance, and its tail decreases in magnitude, till it reaches such a distance from the earth that the attenuated light of the Sun, which it reflects, ceases to reach the eye. Traversing unseen by man, the remote portion of its orbit, the Comet wheels its ethereal course far beyond the time of the solar system. What region it there visits, or upon what destination it is sent, we are wholly ignorant. After a lapse of years, we perceive it again returning to our system, and tracing a portion of the same orbit round the Sun which it had formerly described.

Hevelius observed of the Comet in 1661, that its body was of a yellowish colour, bright and conspicuous, but without any glittering light. In the middle was a dense ruddy nucleus, almost equal to Jupiter's, encompassed with a much fainter, thinner matter. It changed its appearance almost every day. On the 5th of February, the nucleus was some-. what bigger and brighter, of a gold colour, but its light was more dusky than the rest of the stars; it appeared also to be divided into a number of parts. On the following day the nucleus still appeared, though less than before. One of them on the left side of the lower part of the disk, appeared to be denser and brighter than the rest; its body was round, and representing a little lucid star, the nuclei still encompassed with another kind of matter. February 10th, the nuclei were more obscure and confused, but brighter at top than at the bottom. On the 18th the head was diminished, both in magnitude and brilliancy; and on the 28th its matter seemed much dispersed, and no distinct nucleus at all appearing.

Wigelius gives an account of another which he saw through a telescope in the year 1664. He observed th Moon and a little cloud, illuminated by the Sun at the same time, and distinctly saw that the Moon appeared of a continued luminous surface; but the Comet was very different, being perfectly like a little cloud, enlightened by the Sun's beams.

Comets also are, to appearance, surrounded with atmospheres of a prodigious size, often rising ten times higher than the nucleus. They have sometimes been seen with different phases, like the Moon.

Dr. Long describes the appearance of a Comet to the naked eye in the following manner:—" The head appears sometimes like a cloudy star; sometimes it shines with a dull light like that of the planet Saturn; sometimes they have been seen to exceed stars of the first magnitude; some have surpassed Jupiter, and even Venus, in brilliancy, and to have cast a shadow, as Venus sometimes does."

There are three Comets, which have been much celebrated, viz. those which appeared in 1680, 1744, and 1759. The Comet of 1680 was remarkable for its near approach to the Sun; so near, that in its perihelion it was not above a third part of the diameter of that luminary from the surface thereof. Its great heat, in that position, was computed to be 2000 times hotter than an iron at its white heat; of course it must have been entirely dissipated, if it had been any other than a fixed and a solid body. It must also have retained its heat an immense time; for a globe of iron, of an inch in diameter, exposed to the open air, scarcely loses its heat in less than an hour; but a larger globe will retain its heat longer in proportion to its diameter, because the surface at which it grows cold varies in that proportion less than the quantity of hot matter. Therefore, a globe of red hot iron,

as big as our Earth, would searcely cool in 50,000 years. The period of this Comet has been calculated at 575 years; and, if the computation be accurate, it will not return to the vicinity of the Earth till about the year 2225. This Comet, at its greatest distance, is about eleven thousand two hundred millions of miles from the Sun, and at its least distance it is no more than 49,000 miles. In that part of its orbit which was nearest the Sun, it was computed to move at the rate of \$80,000 miles in an hour.

Dr. Halley, who saw the Comet which appeared in 1682, says, "That there are many things which make me believe that the Comet which Appian saw in the year 1531, was the same with that which Kepler and Longiomontanus more accurately described in the year 1607, and which I myself have seen return, and observed in 1682. All the elements agree. and nothing seems to contradict this opinion, except the inequality of the periodic revolutions; which inequality is not so great, but that it may be owing to physical causes. For the motion of Saturn is so disturbed by the rest of the planets. especially Jupiter, that the periodic time of that planet is uncertain for some whole days together. How much more, therefore, will a Comet be subject to like errors, which rises. perhaps, four times higher than Saturn, and whose velocity, though increased but very little, would be sufficient to change its orbit from an ellipse to a parabola! and I am the more confirmed in my opinion of its being the same; for, in the year 1456, in the summer time, a Comet was seen passing retrograde between the Earth and the Sun, much after the same manner, which, though nobody made observations upon it, yet, from its period and manner of transit, I cannot think different from those I have just mentioned; and since looking over the history of Comets, I find, at an equal interval of time, a Comet to have been seen about Easter, in the year 1305, which is another double period of 151 years before the former.

Hence I think I may venture to foretel that it will return again in 1753."

Dr. Halley computed the effect of Jupiter upon this Comet in 1682, and found that it would increase its periodic time above a year; in consequence of which, he predicted its return at the end of the year 1758, or the beginning of 1759. M. Clairault computed the effects of both Saturn and Jupiter, and found that the former would retard its return in the last period 100 days, and the latter 511 days; and he determined the time when the Comet would come to its perihelion to be on the 15th of April, 1759, observing, however, that he might err a month, from neglecting small quantities in the computation. The Comet did pass the perihelion on the 13th of March, within thirty-three days of the time computed. Now if Dr. Halley meant the time of its passing the perihelion, and we had 100 days for the action of Saturn, which he did not take into the calculation, it will bring it very near to the time in which it passed the perihelion, and prove his computation of the effect of Jupiter to have been accurate. But if he meant the time when the Comet would first appear, his prediction was accurate; for it was first seen on December 14th; 1758, Dr. Halley, therefore had the glory first to foretel the return of a Comet; and the event answered, in a remarkable manner, his prediction. He further observed, that the action of Jupiter, in the descent of the Comet towards its perihelion in 1682, would tend to increase the inclination of its orbit; and, accordingly, the inclination in 1682 was found to be greater by twenty-two than it was in the year 1607.

Dr. Halley suspected that the Comet in 1680, was the same that appeared in 1106, 531, and also in the year 44, before the Christian era. He also conjectured, that the Comet observed by Appian in 1532 was the same as that observed by Hevelius in 1661; if so, its period was 129 years, and it ought to have been returned in 1789, but it did not appear,

though astronomers here, and on the Continent, were watching its approach with great anxiety.

From the beginning of our era to this time, it is probable, according to the best accounts, that there have appeared 500 Comets. Before that time, above 100 others are mentioned in history; but, perhaps, half of these, had they been accurately observed, would not have proved Comets. When, however, we consider that many others may not have appeared, from being too near the Sun; from appearing in moonlight; from being in the other hemisphere; from being too small to be perceived; or which may not have been recorded; it is reasonable to suppose that the whole number is much greater. It is, on the other hand, very likely, that of the Comets that have been recorded as seen, the same may have appeared several times, and therefore the number may be less than is stated.

Remarkable Comets appeared in the years 1807, 1808 and 1811; of these we may, in a subsequent Number, give enlarged accounts. We shall only observe, 1. That of the ninety-eight Comets, whose elements have been observed and calculated previously to the year 1808, twenty-four have passed between the Sun and orbit of Mercury; thirty-two between the orbits of Mercury and Venus; twenty-one between the orbits of Venus and the earth; sixteen between the orbits of the Earth and Mars; three between the orbits of Mars and Ceres; and one between those of Ceres and Jupiter.—2. That thirty-two Comets have appeared between the months of April and September, and sixty-six between September and April.-3. That the greatest part of the Comets have their perihetion nearest to their ascending nodes.-4. That fifty Comets move from west to east.—5. That the orbits of the Comets are not confined to any particular region of the heavens, like the planets that have long been known, but seem to be inclined to every possible angle of the ecliptic.

To the Editor of the Monthly Correspondent.

Dec. 24th, 1813.

I PRESUME from the nature of your proposed work, that all experiments and observations on Light and Colours will find a place in your useful publication; the former from its relation to the noble science of Astronomy, the latter for their utility in the arts and domestic occurrences of life. With the experiments of Newton and Herschel on this subject the public are well acquainted; and latterly Dr. Brewster has made some valuable additions to our imperfect knowledge of this most intercresting matter. The labours of the latter gentleman have been detailed to the Royal Society during three successive Thursdays, and only terminated last night. Dr. Brewster, availing himself of Biot's discovery of the polarization of the rays of light, has pursued his experiments with thin plates of agate, by which, and Iceland spar, he repeatedly poralized and deporalized light; he also discovered the poralizing, deporalizing, and what he calls the neutral axis of the agate, and the extraordinary effects respectively produced in the colours exhibited, particularly on the coloured rings, wavy pencils, and rainbow-like appearances.

I have made several experiments on the coloured concentric rings, noticed by Newton, and latterly examined, with little success, by Herschel; I have also repeated some of Dr. Brewster's experiments, with results somewhat different from them all. At present, other avocations prevent me from laying before you a detailed account of those appearances; but one fact I shall here state, which may perhaps contribute to aid the researches of those who may wish to repeat such pleasing experiments. It is this—That in all experiments made either with lenses, pieces of ground or plate glass, or agate, the colours of the rings and the pencils of rays always depended, or were modulated by the thickness of the ma-

terial refracting the light. This fact has not yet been noticed by any philosopher with whom I am acquainted; and it will, I doubt not, when more extensively examined, prove of some advantage to opticians, not merely in making microscopes, but also telescopes, and all kinds of optical instruments. It appears, that we are yet very inadequately acquainted with the effects of diaphanous bodies in refracting light; and that although the prism has long been a subject of admiration to the multitude, the analysis of light, so admirably commenced by Newton, has not improved a tittle during the whole of the last century. Should you think these remarks worthy a place in your work, you will oblige a friend to every useful and scientific undertaking. Yours, &c.

P. P. P.

To the Editor of the Monthly Correspondent,

SIR,

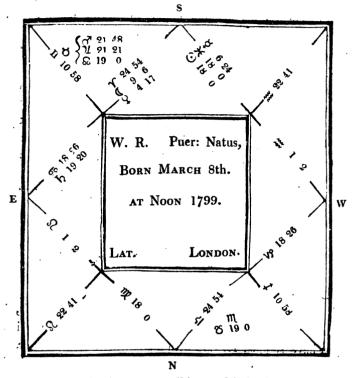
A prospectus of your work having fallen into my hands, I am happy to express my approbation of the manner in which you have stepped forward with a publication that seems calculated to dispense at once information to the student, and to open a channel for the professors of this sublime art, to display the power of the stars over every principal action of human existence.

Should you insert this nativity, you will have my future correspondence.

I am, Sin,
With best wishes for your success,
Your very humble servant,

LONDON, Nov. 20th 1813, MERCURIUS,

Just entering life, this little stranger ey'd The scene of trouble, lik'd it not, and dy'd.



This Nativity is a most striking and indubitable proof of sidereal influx, and the baneful effects which will always be found to arise from similar positions. Here the Sun is lord of fife, angular, and severely afflicted by the malefic square of Saturn in the world, who is cardinalty and angularly posited in a situation so as to restrict existence to a moment. Jupiter, who roles the Sun's place, is bodily with the lesser infortune, while the latter also disposes of the Moon. Under such an evil combination of planetary rays, with neither of the benefics to assist, as is the case here, it is impossible but that death should occur within the period of nutrition.

JANUARY 1812.

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JULY 1812.

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AUGUST 1812.

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SEPTEMBER 1912.

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THE GEORGIAN, OR NEW PLANET.

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OCTOBER 1812.

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